



TD141THCA1

Tentative

Ver.: 0.00

TFT LCD Specification

Model Name: TD141THCA1

Customer Signature
Date

This technical specification is subjected to change without notice



Table of Contents

NO.	Item	Page
	Cover Sheet	1
	Table of Contents	2
	Record of Revision	3
1	Features	4
2	General Specifications	4
3	Input / Output Terminals	5
4	Absolute Maximum Ratings	6
5	Electrical Characteristics	6
6	Timing Chart	9
7	Optical Characteristics	13
8	Reliability	17
9	Handling Cautions	18
10	Mechanical Drawing	19
11	Packing Drawing	21
12	Module & Carton Label Drawing & Definition	22
	Appendix1 EDID	24

Record of Revision

[illegible]



TD141THCA1

1. FEATURES

This module is a color active matrix LCD module that uses LTPS (Low Temperature Poly Silicon) TFT (Thin Film Transistor). This module is composed of a color TFT-LCD panel, a driver circuit and a backlight unit. The resolution of a 14.1" contains 1280 x 800 pixels and can display up to 262,144 colors.

- (1) 14.1" WXGA (1280 x 800 pixels) display size for notebook PC
- (2) LTPS TFT technology
- (3) High contrast ratio, high aperture ratio and high-brightness
- (4) LVDS interface system
- (5) Onboard EDID chip
- (6) Low power consumption.
- (7) Thin and light weight
- (8) RoHS compliant

2. GENERAL SPECIFICATIONS

Item	Description	Unit
Display Size	14.1" Diagonal	inch
Aspect Ratio	16 : 10	
Active Area	303.4 (H) x 189.6 (V)	mm
Number of Dots	1280 (H) x RGB x 800 (V)	dot
Pixel Pitch	0.237 (H) x 0.237 (V)	mm
Color Arrangement	R, G, B Vertical Stripe	
Outline Dimension (typ.)	319.5 (H) x 205.5 (V) x 5.1 (T)	mm
Weight (typ.)	415	g
Display Mode	Normally White	
Surface Treatment	Glare + 3H Hard coating	



TD141THCA1

3. INPUT/OUTPUT TERMINALS

3.1 TFT LCD Panel

Recommend Connector Type	JAE FI-XB30S-HF10 or Compatible
Matching Connector Type	FPC : FI-X30M or Compatible WIRE : FI-X30H or Compatible

Pin No	Symbol	Function	Polarity	Remark
1	VSS	Ground		
2	VDD	Power supply +3.3 v		
3	VDD	Power supply +3.3 v		
4	V _{EDID}	DDC 3.3V power		
5	NC	Reserved for supplier test point		
6	Clk _{EDID}	DDC Clock		
7	DATA _{EDID}	DDC Data		
8	Rin0-	-LVDS differential data input (R0~R5, G0)	Negative	1CH
9	Rin0+	+LVDS differential data input (R0~R5, G0)	Positive	
10	VSS	Ground		
11	Rin1-	-LVDS differential data input (G1~G5, B0~B1)	Negative	1CH
12	Rin1+	+LVDS differential data input (G1~G5, B0~B1)	Positive	
13	VSS	Ground		
14	Rin2-	-LVDS differential data input (B2~B5, DE, Hsync, Vsync)	Negative	1CH
15	Rin2+	+LVDS differential data input (B2~B5, DE, Hsync, Vsync)	Positive	
16	VSS	Ground		
17	Clk IN-	-LVDS differential clock input (Clock input)	Negative	1CH
18	Clk IN+	+LVDS differential clock input (Clock input)	Positive	
19	VSS	Ground		
20		No connect		
21		No connect		
22	VSS	Ground		
23	N.C	No connect		
24	N.C	No connect		
25	VSS	Ground		
26	N.C	No connect		
27	N.C	No connect		
28	VSS	Ground		
29	N.C	No connect		
30	N.C	No connect		

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TD141THCA1

3.2 Light Source

Light Source Type: CCFL Back Light

Recommend Connector Type : JST BHSR – 02VS - 1

Pin NO.	Symbol	Color	Function
1	V _H	Pink	High Voltage
2	V _L	White	Low Voltage

4. ABSOLUTE MAXIMUM RATINGS

GND =0V

Item	Symbol	MIN	MAX	Unit	Remark
Power Supply Voltage	V _{cc}	V _{ss} -0.3	4.0	V	
Logic Input Voltage	V _{in}	V _{ss} -0.3	(V _{ss} +0.3)	V	
Lamp Current	I _L	2.0	7.0	mA rms	
Lamp Frequency	F _L	50	80	KHz	
Operating Temperature	T _{opr}	0	+50	°C	
Storage Temperature	T _{stg}	-25	+60	°C	
Storage Humidity	H _{stg}	10	90	%RH	Note 4-1

Note 4-1: Maximum wet – bulb temperature at 39°C or less. (Ta>40°C) No condensation

5. ELECTRICAL CHARACTERISTICS

5.1 TFT LCD Module

Ta=25°C

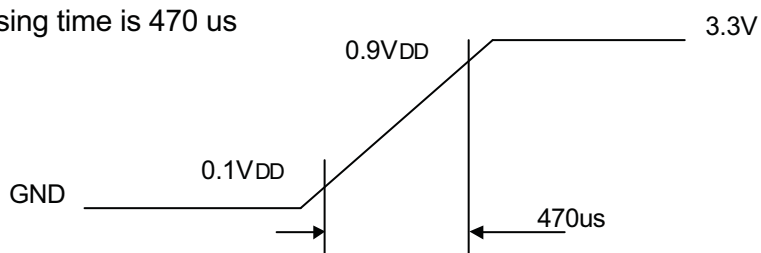
Item		Symbol	MIN	TYP	MAX	Unit	Remark
Voltage of power supply		V _{DD}	3.0	3.3	3.6	V	
Differential Input Threshold Voltage	V _{HIH}	V _{HIH}	--	--	100	mV	V _{CM} = +1.2V
	V _{HIL}	V _{HIL}	-100	--	--	mV	
Rush Current	I _{RUSH}	I _{RUSH}	--	--	1.5	A	Note 5.1
Vsync Frequency		f _V	40	60	--	Hz	
Hsync Frequency		f _H	31.9	47.8	--	KHz	
Main Frequency		f _{DCLK}	68	71	85	MHz	
Current of Power Supply		White	--	280	--	mA	Note 5.2
		Mosaic	--	335	--	mA	Note 5.2
		Black	--	397	--	mA	Note 5.2



TD141THCA1

Note 5-1: Refer to the following power-on condition

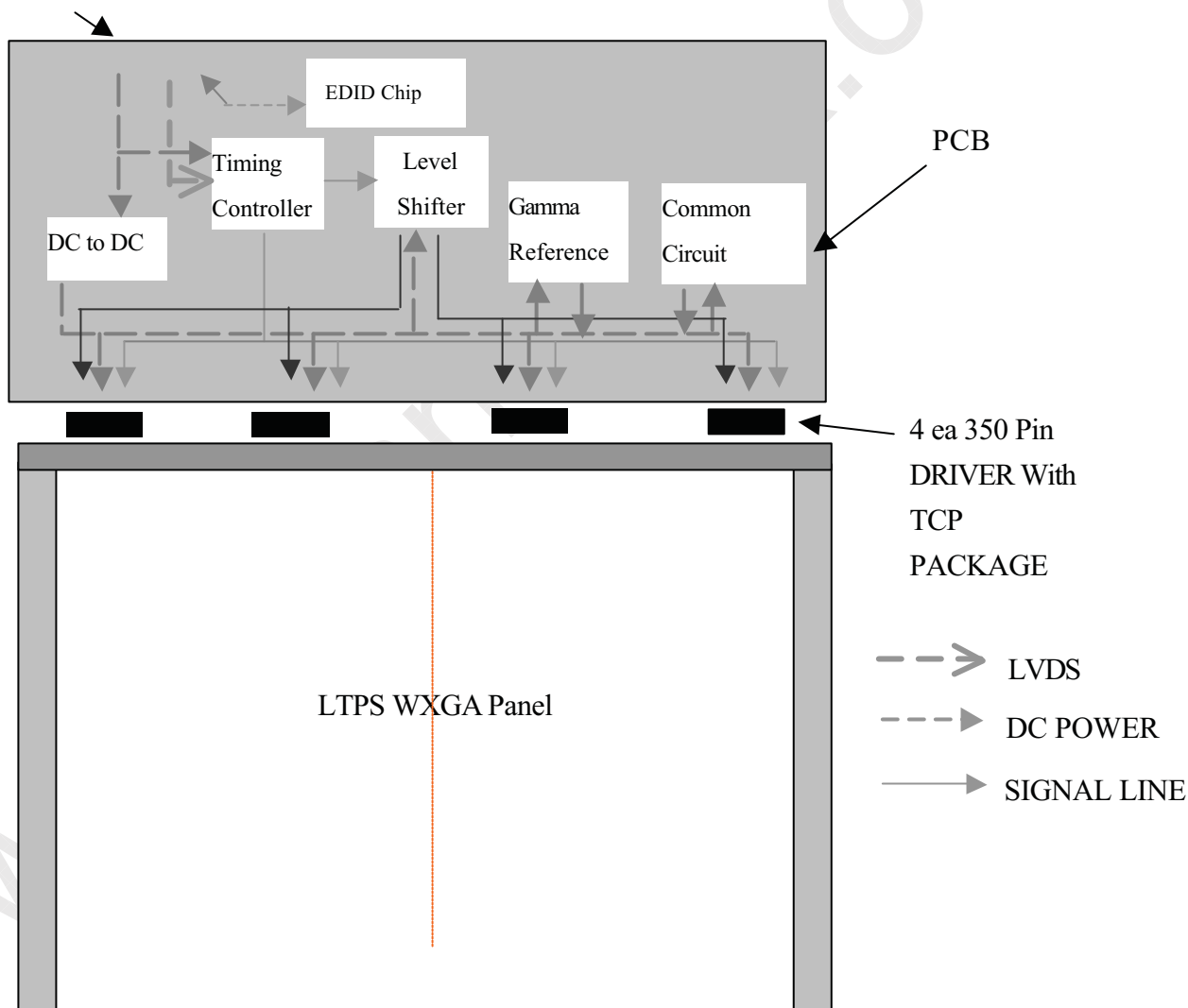
VDD rising time is 470 us



Note 5-2: Power are measure as following test condition: $f_V = 60$ Hz, $f_{DCLK} = 71$ MHz, $V_{DD} = 3.3V$, DC Current

Driving TFT LCD Module Block Diagram

1-CH LVDS INTERFACE





TD141THCA1

5.2 Driving Backlight

The backlight system is an edge – lighting type with a single CCFL (Cold Cathode Fluorescent Tube)

The characteristics of a single lamp are shown in the following tables.

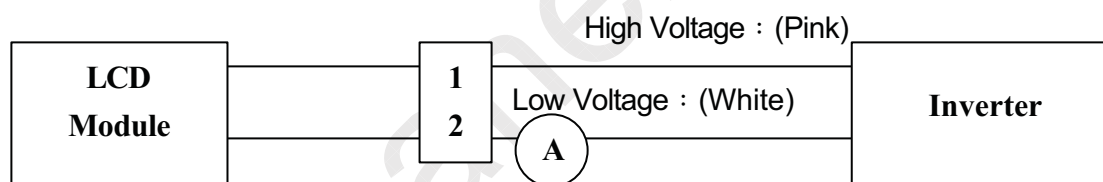
Ta=25°C

Item	Symbol	MIN	TYP	MAX	Unit	Remark
Lamp Current	I_L	3.0	6.0	6.5	mArms	Note 5-1
Lamp Voltage	V_L	576	680	704	Vrms	$I_L = 6mA$
Power Consumption	P_L	--	4.08	--	W	Note 5-2
Frequency	F_L	50	60	80	KHz	Note 5-3
Operating Life time	Hr	15,000	--	--	Hour	Note 5-4
Lamp starting voltage	V_s	--	--	1160 (25°C)	Vrms	Note 5-5
				1450 (0°C)		

Note) The performance of backlight, for example life time or brightness are deep influence by the characteristic of the inverter. So all the parameters of inverter should be designed carefully. And should not to produce too much leakage current from high-voltage output of the inverter.

The Inverter should be designed with the characteristic of lamp. Please make sure that a poor lighting cause by the mismatch of the backlight and inverter never occur.

Note 5-1: Lamp current is measured with a high frequency current meter as show below.



Switching Frequency : (50~80)KHz

Note 5-2: $W = I_L (TYP) \times V_L (TYP)$

Note 5-3: Lamp frequency may produce interference with horizontal synchronous frequency and this may cause line flow on the display. Therefore lamp frequency shall be detached from the horizontal synchronous frequency and its harmonics as far as possible in order to avoid interference.

Note 5-4: Operating Life time is defined as lamp which are continue to operate under the condition Ta=25°C and $I_L = 6mArms$ until the brightness is decreased to the 50% or lower than the initial brightness.

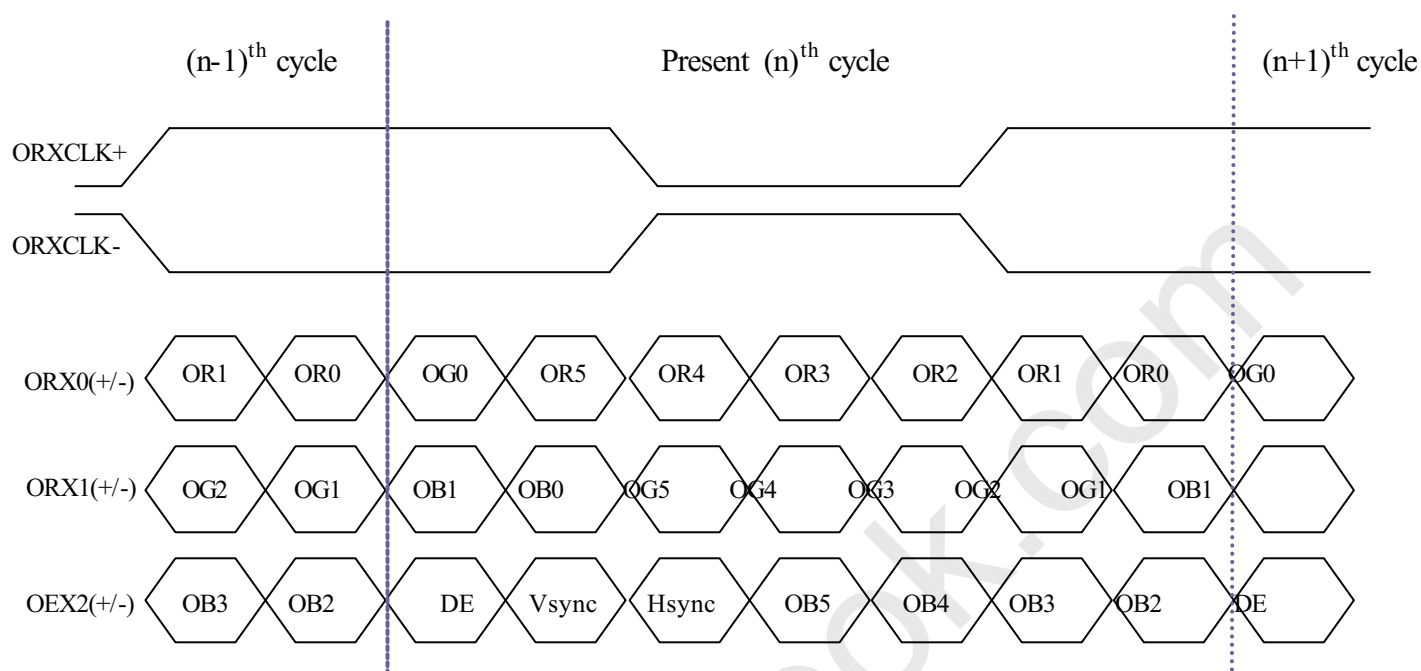
Note 5-5: Above this value should be applied to the lamp for more than 1 second to startup, otherwise the lamp may not be turned on.



TD141THCA1

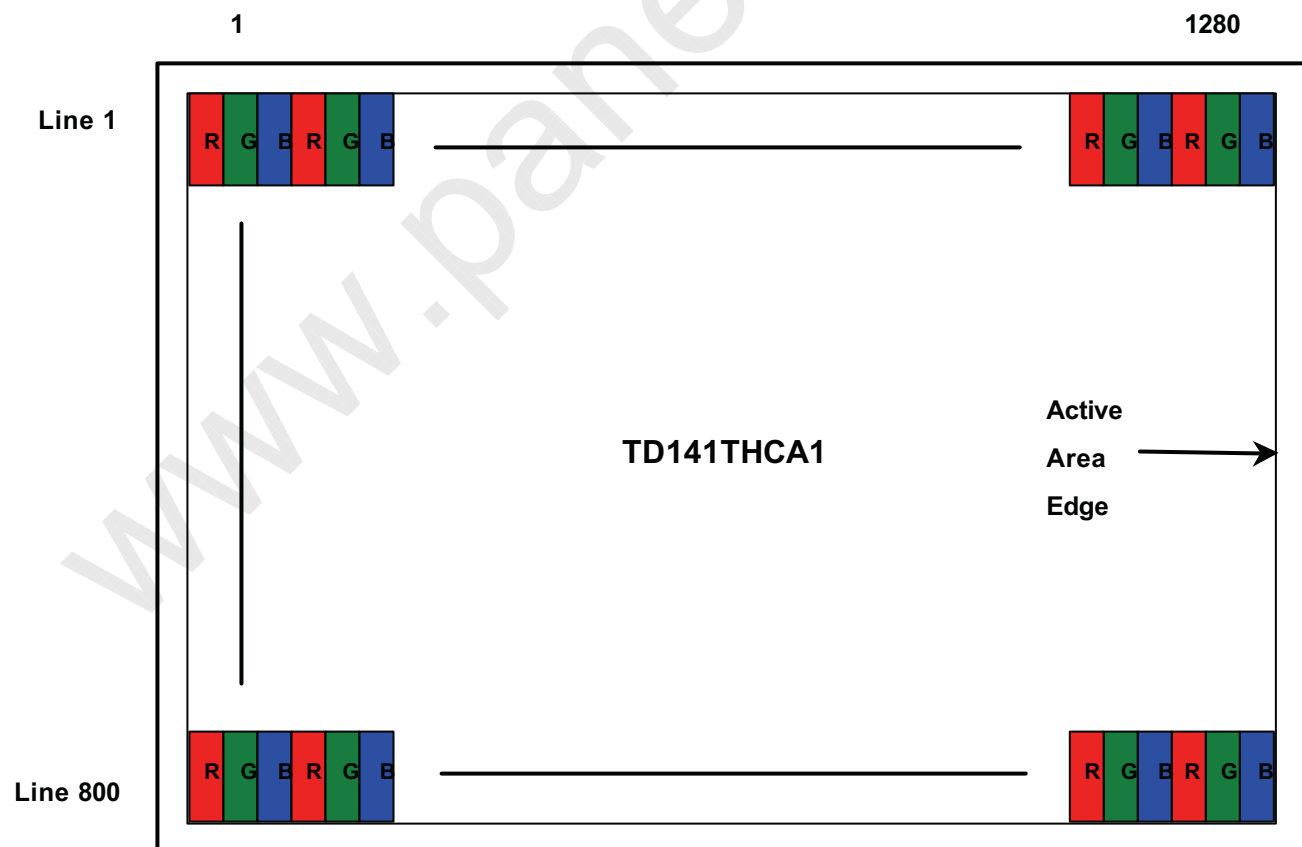
6. TIMING CHART

6.1 1CH LVDS Channel Interface Data Mapping Diagram



Note1: R/G/B [5] are the MSBs and R/G/B[0] are LSBs

6.2 Pixel Format in Display



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TD141THCA1

6.3 Input Signals, Basic Display Color and Gray Scale of Each Color

Input Signals, Basic Display Colors and Gray Scale of Each Color

COLOR	DISPLAY	DATA SIGNAL																GRAY SCALE LEVEL		
		RED						GREEN						BLUE						
		R0	R1	R2	R3	R4	R5	G0	G1	G2	G3	G4	G5	B0	B1	B2	B3		B4	B5
COLOR	BLACK	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	BLUE	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	-
	GREEN	0	0	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0	-
	CYAN	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	-
	RED	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	-
	MAGENTA	1	1	1	1	1	1	0	0	0	0	0	0	1	1	1	1	1	1	-
	YELLOW	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	-
	WHITE	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	-
GRAY SCALE OF RED	BLACK	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	R0
	DARK ↑	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	R1
		0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	R2
		:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	R3~R60
		:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:		
	↓ LIGHT	1	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	R61
		0	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	R62
	RED	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	R63
GRAY SCALE OF GREEN	BLACK	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	G0
	DARK ↑	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	G1
		0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	G2
		:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	G3~G60
		:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:		
	↓ LIGHT	0	0	0	0	0	0	1	0	1	1	1	1	0	0	0	0	0	0	G61
		0	0	0	0	0	0	0	1	1	1	1	1	0	0	0	0	0	0	G62
	GREEN	0	0	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0	G63
GRAY SCALE OF BLUE	BLACK	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	B0
	DARK ↑	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	B1
		0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	B2
		:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	B3~B60
		:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:		
	↓ LIGHT	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	1	1	B61
		0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	B62
	BLUE	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	B63

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TD141THCA1

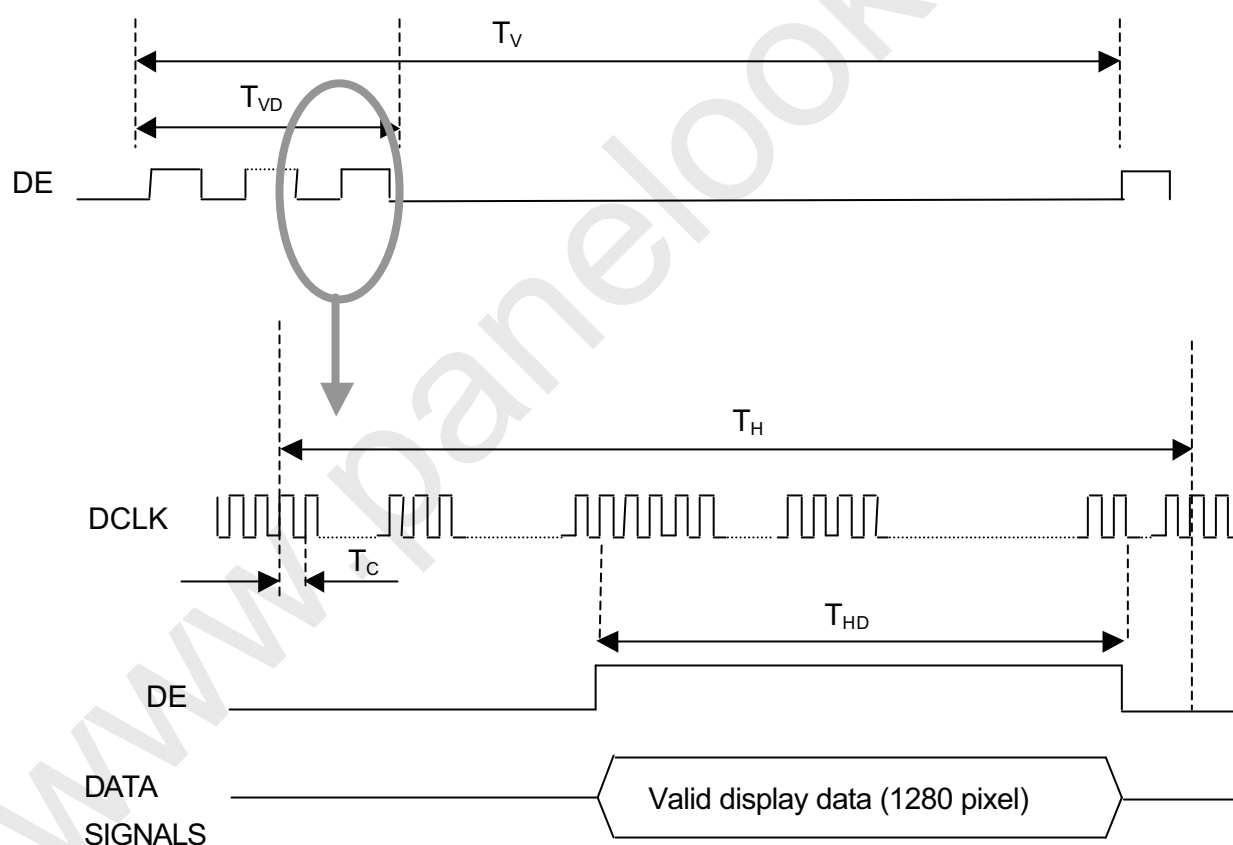
6.4 Interface Timing

a. Timing Parameters

Signal	Item	Symbol	MIN	TYP	MAX	Unit	Note
Frame Frequency	Cycle	T_V	-	823	-	Lines	
Vertical Active Display Time	Display Period	T_{VD}	-	800	-	Lines	
One Line Scanning Time	Cycle	T_H	-	1440	-	T_C^*	
Horizontal Active Display Time	Display Period	T_{HD}	-	1280	-	T_C^*	

NOTE*: T_C = ain frequency's clocks.

b. Timing Diagrams Of Interface Signal

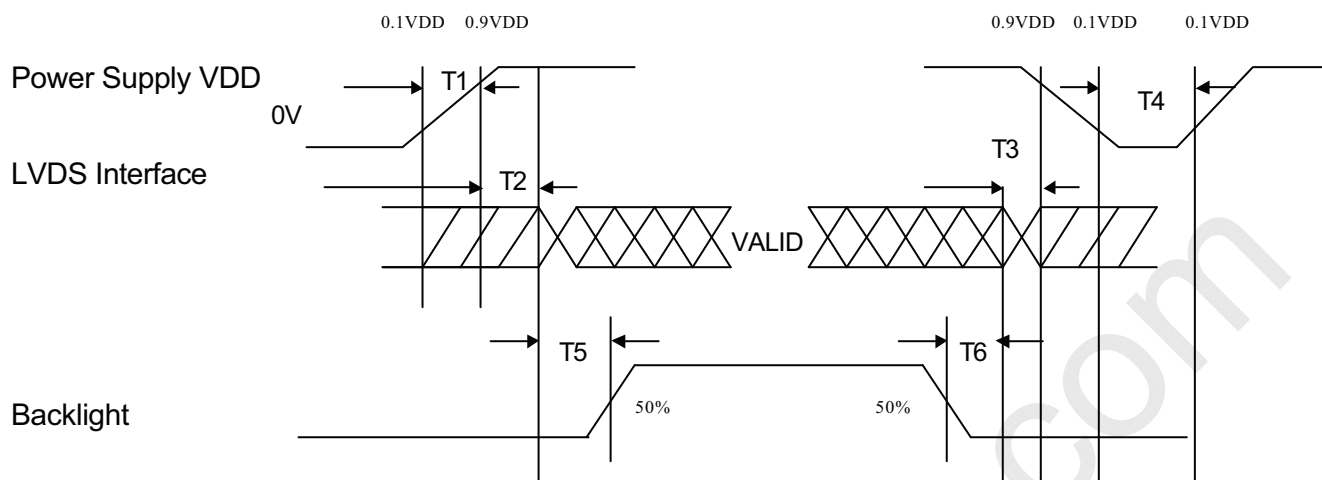




TD141THCA1

6.5 Power ON/OFF Sequence

To prevent a latch-up or DC operation of the LCD module, the power on/off sequence should be as the diagram below.



$$T1 \leq 10\text{ms} \quad 0 \leq T2 \leq 50\text{ms} \quad 0 \leq T3 \leq 50\text{ms} \quad 400\text{ms} \leq T4 \quad 200\text{ms} \leq T5 \quad 200\text{ms} \leq T6$$

T1: VDD rising time from 0.1 VDD to 0.9 VDD.

T2: The time from 0.9VDD to valid data at power ON.

T3: The time from 0.9VDD to valid data at power OFF.

T4: VDD off time for window restarts.

T5: The time from valid data to B/L enable at POWER ON.

T6: The time from valid data off to B/L disable at power OFF.

Apply the lamp voltage within the LCD operation range. When the backlight turns on before the LCD operation or the LCD turns off before the backlight turns off, the display maybe momentarily become white.



TD141THCA1

7. OPTICAL CHARACTERISTICS

7.1 Optical Specification

Ta=25°C

Item		Symbol	Condition	MIN	TYP	MAX	Unit	Remarks
Viewing Angle	Hor.	⊖ 11	CR≥ 10 (At center point)	40	45	-	degree	Note 7-1
		⊖ 12		40	45	-		
	Ver.	⊖ 21		15	20	-		
		⊖ 22		40	45	-		
Contrast ratio (5 Point)		CR	⊖ =0° Φ =0° Normal Viewing Angle	300	-	-		Note 7-2
Response time	Rising	Tr		-	8	10	ms	Note 7-4
	Falling	Tf		-	16	20		
Luminance of White (5 Point)		Y _L		150	185	-	cd/m ²	Note 7-5
Color Chromaticity (CIE1931)	Red	R _X		0.543	0.573	0.603		Note 7-6
		R _Y		0.311	0.341	0.371		
	Green	G _X		0.283	0.313	0.343		
		G _Y		0.524	0.554	0.584		
	Blue	B _X		0.118	0.148	0.178		
		B _Y		0.09	0.120	0.150		
	White	W _X		0.280	0.310	0.340		
		W _Y		0.300	0.330	0.360		
White Variation		δ _{L5}	5 Points	0.8	-	-		Note 7-3
		δ _{L13}	13 Points	0.65	-	-		

7.2 Basic measure condition

(1) Ambient temperature: Ta=25°C

(2) Vcc = 3.3V°

(3) Fv = 60Hz

(4) f_{DCLK} = 108MHz(1CH) / 54MHz(2CH)(5) I_L = 6mA

(6) Inverter model: HIU-766 (62K)

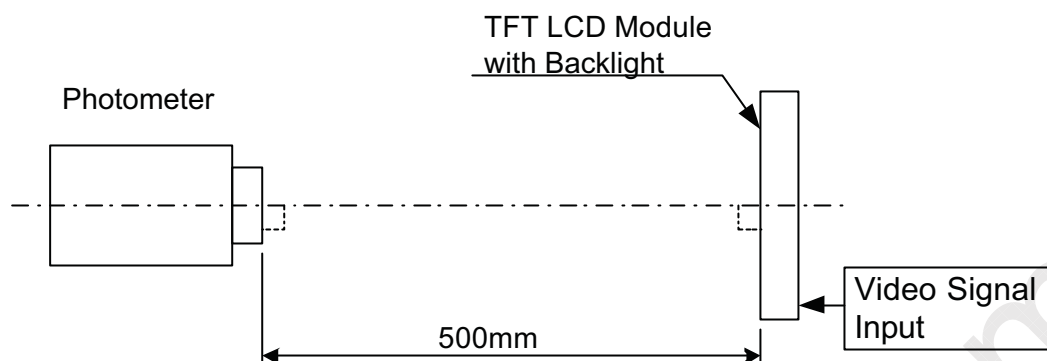
Environmental illumination: ≤ 1 lux

(7) Optical measuring equipment are TOPCON BM-5A

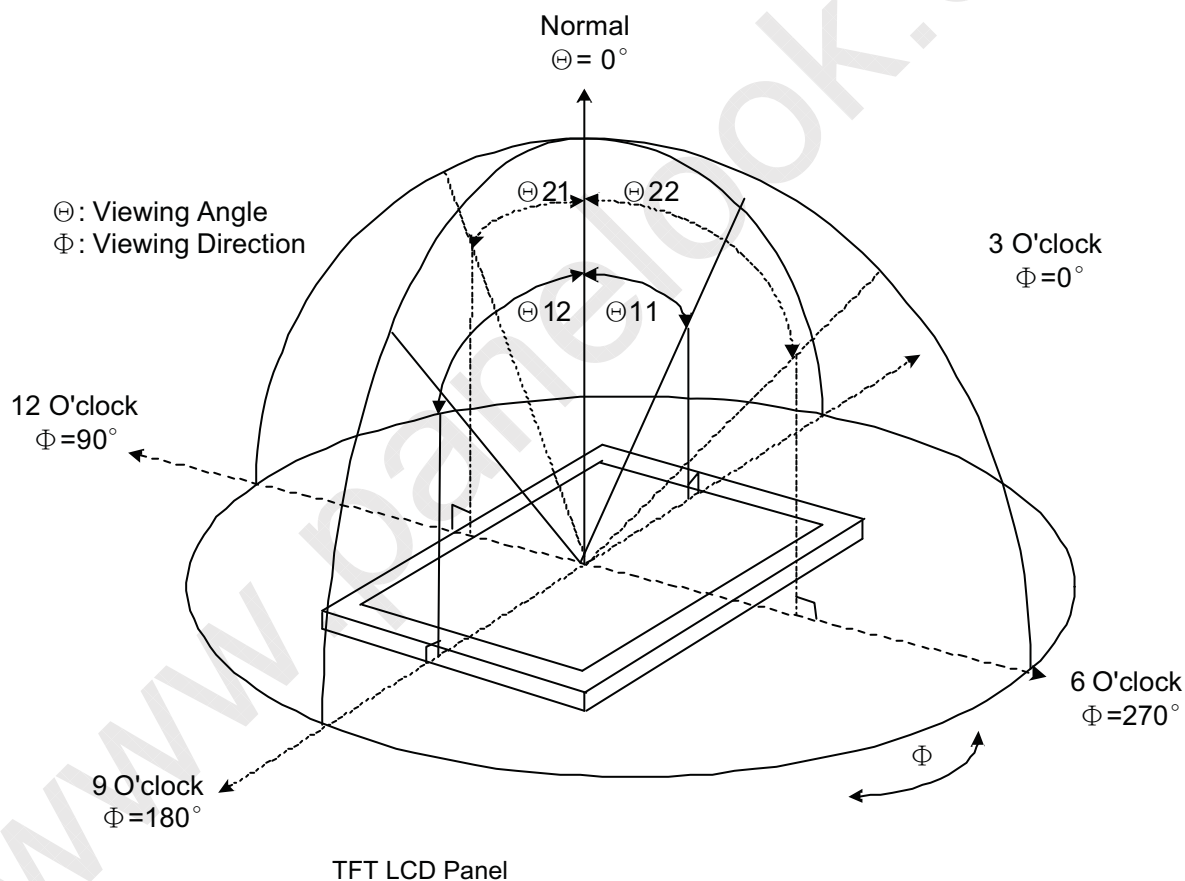


TD141THCA1

(8) Testing facility



Note 7-1: Viewing angle diagrams:

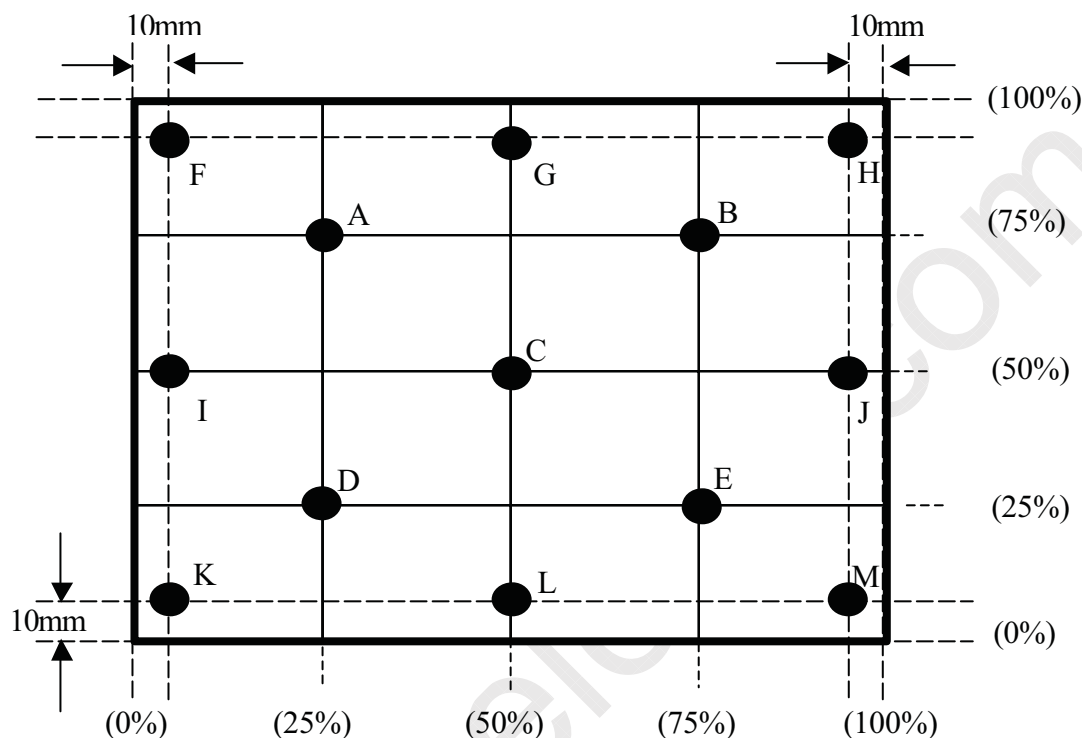




TD141THCA1

Note 7-2: Definition of Contrast ratio : Ratio of gray max (Gmax), gray min (Gmin) at 5 point

$$CR = \frac{CR(A) + CR(B) + CR(C) + CR(D) + CR(E)}{5}$$



Note 7-3: Definition of uniformity;

(1) 5 points, Test point (A,B,C,D,E) as Note 7-2

$$\delta_{L5} = \frac{\text{Minimum Luminance of 5 point}}{\text{Maximum Luminance of 5 point}}$$

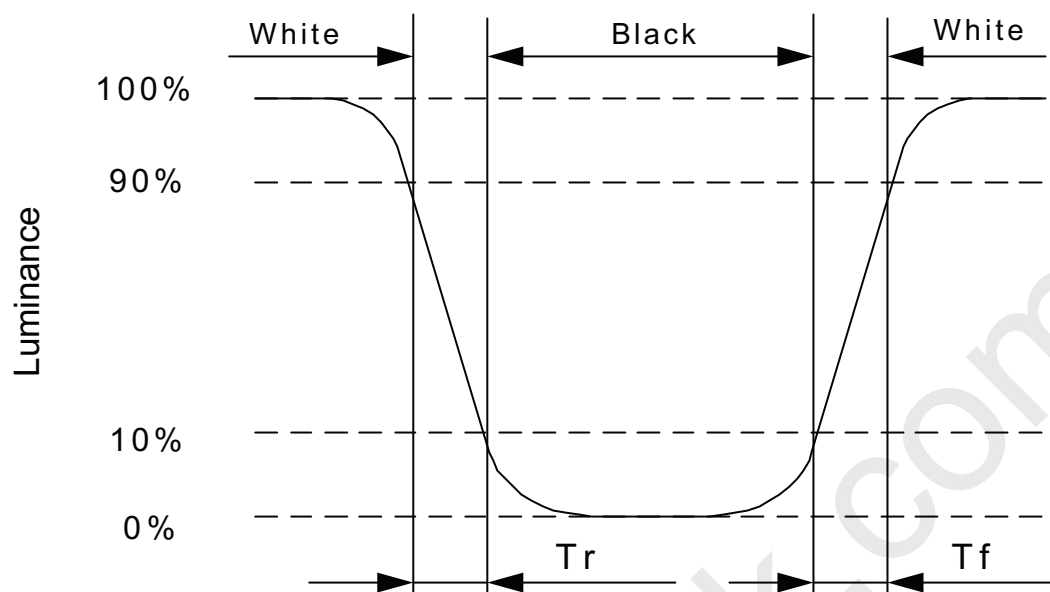
(2) 13 points, Test point as Note 7-2

$$\delta_{L13} = \frac{\text{Minimum Luminance of 13 point}}{\text{Maximum Luminance of 13 point}}$$



TD141THCA1

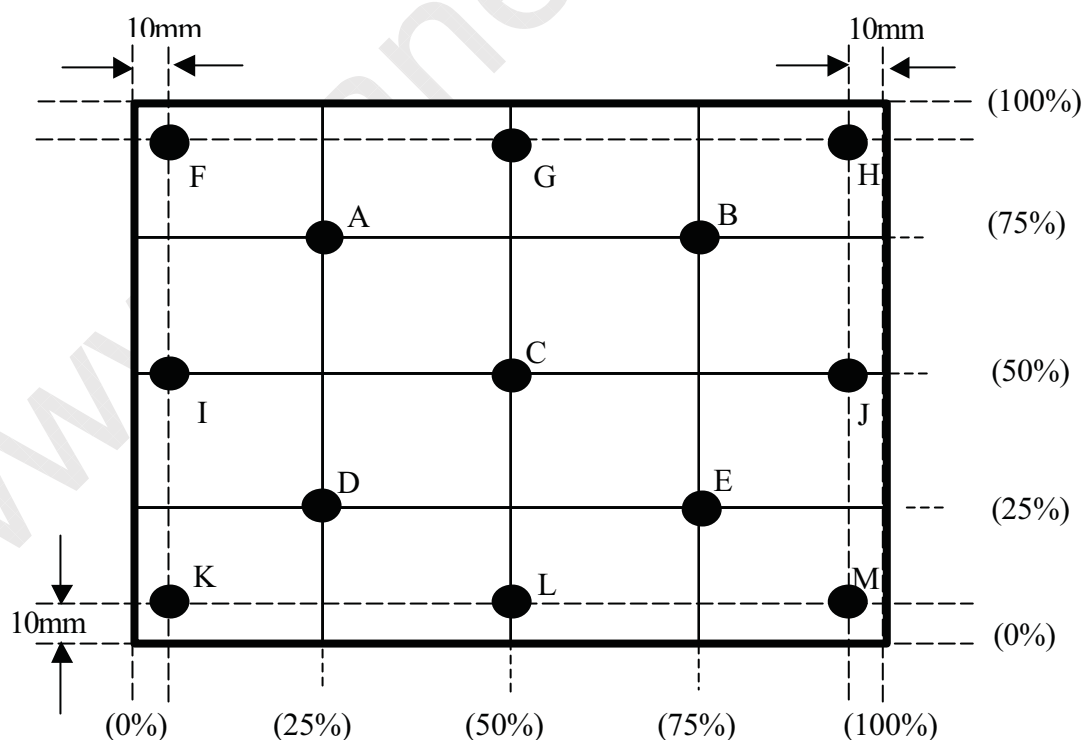
Note 7-4: Definition of response time:



Note 7-5: Definition of Average Luminance of White : measure the luminance of white at 5 points.

Luminance of White (5 Point) ($Y_{L, AVE}$)

$$Y_{L, AVE} = \frac{Y_A + Y_B + Y_C + Y_D + Y_E}{5}$$



Note 7-6: To be measured in dark room environment and after lighting the backlight for 30 minutes.

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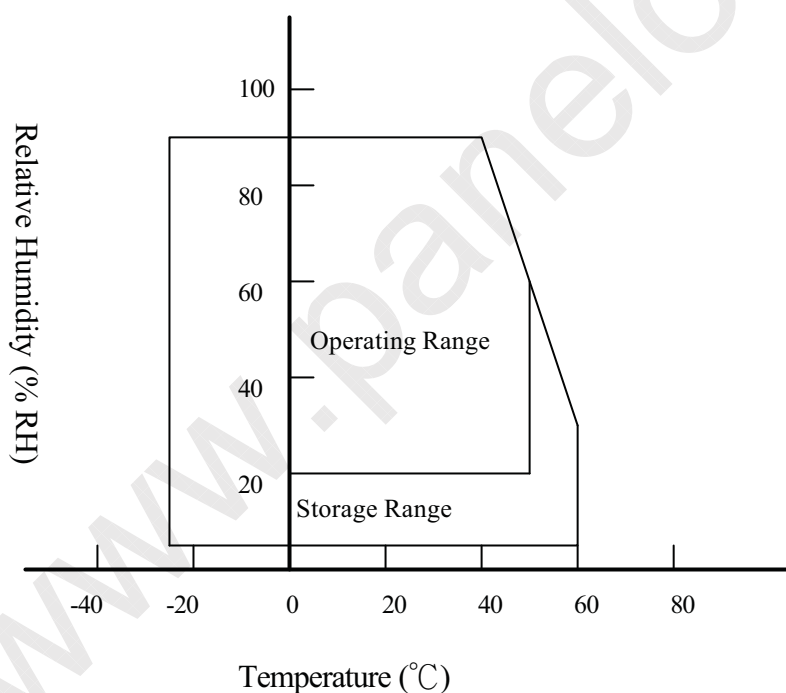
8. RELIABILITY

No	Test Item	Condition
1	High Temperature Operation	Ta=+50°C, 240hrs
2	High Temperature & High Humidity Operation No Condensation	Ta=+40°C, 90% RH, 240hrs
3	Low Temperature Operation	Ta=0°C, 240hrs
4	High Temperature Storage	Ta=+60°C, 240hrs
5	Low Temperature Storage	Ta=-25°C, 240hrs
6	Shock (non-operation)	Half-sine wave 220 G, 2ms, ±X, ±Y, ±Z (Once for each direction)
7	Vibration (non-operation)	Frequency: 10~500~10Hz 1.5 x 9.8m/s ² constant Amplitude: 1.5mm; Sweep Time: 15min Test Time: 1.0 hr for each direction of X, Y, Z

Ta: Ambient Temperature

Note 8.1: Evaluation should be tested after one hour of room temperature storage.

Note 8.2: Temperature and relative humidity range is shown as below.





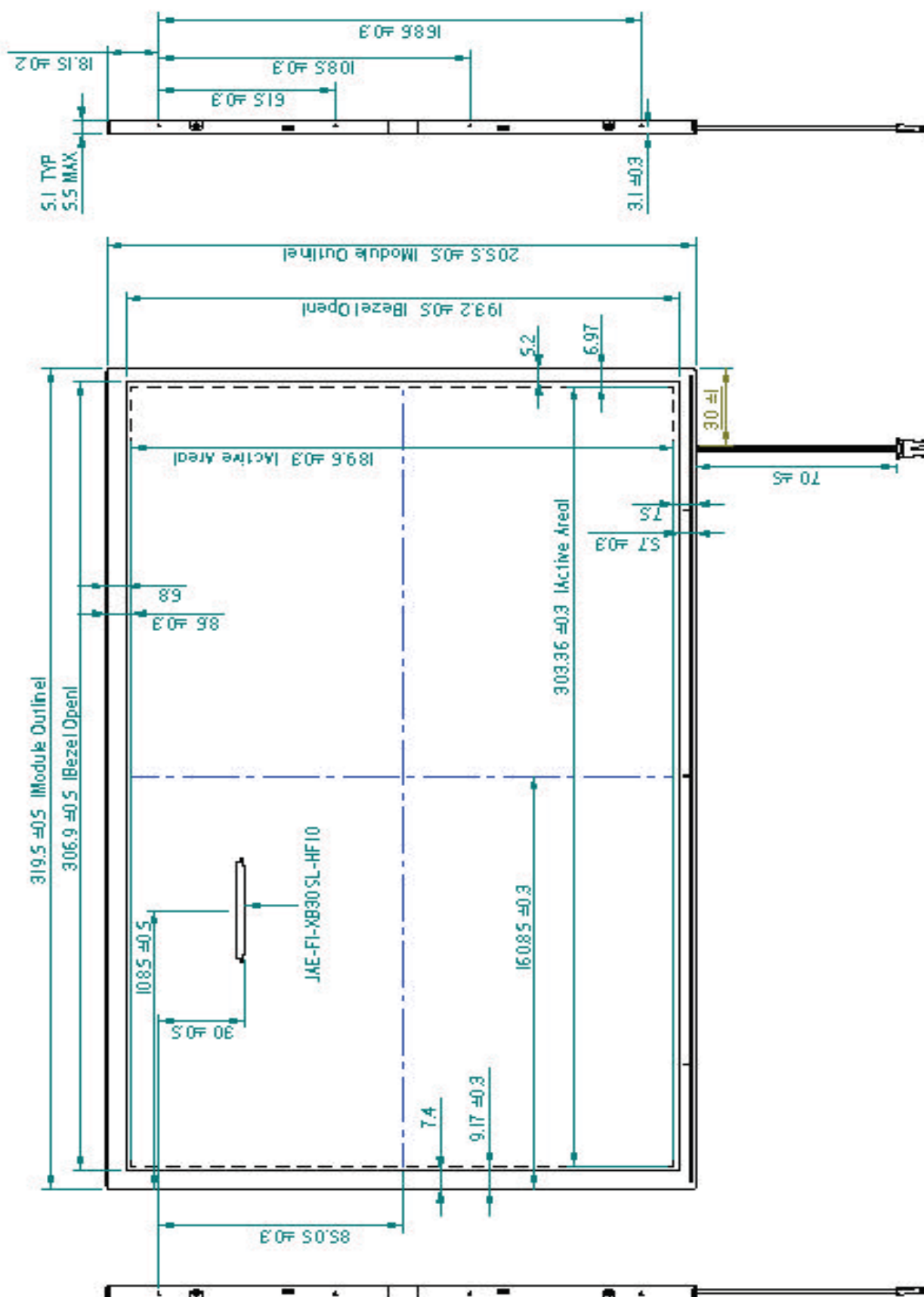
9. HANDLING CAUTIONS

- 9.1 Module assembly working environment should in the clean room.
- 9.2 The polarizer is easy damaged, handle it carefully and do not press or scratch the surface by sharp material.
- 9.3 Panel has polarizer protective film in the surface please remove the protection film of polarizer slowly to prevent the electrostatic discharge.
- 9.4 Wipe off water drop immediately. Long contact with water may cause discoloration or spots.
- 9.5 It is not permitted the pressure or impulse on the module, it may cause LCD panel or Backlight damaged.
- 9.6 Wipe panel surface with special clean cloth of LCD when the surface is dirty.
- 9.7 Turn off the power supply before connecting and disconnecting signal input cable.
- 9.8 The lamp wire is very weak, do not handle panel only by lamp wire.
- 9.9 As the packing bag open, watch out the environment of the panel storage. High temperature and high humidity environment is prohibited.
- 9.10 Please to storage the LCD module within the specification condition. High temperature or high humidity environment may reduce the module performance.
- 9.11 Do not disassemble the module.
- 9.12 Do not touch the backlight connecter. The backlight start voltage about 1000Volts.it may cause electrical shock.
- 9.13 Mounting screw hole can sustain torque 1.3 ~ 2.5 Kgf-cm.
- 9.14 Do not adjust the variable resistor that is located on the module back side.
- 9.15 I/F connector pins shall not to be touched directly with bare hands.
- 9.16 When the TFT LCD module is broken or liquid crystal leaks from the panel, it should be keep always from the eyes or month. If your hand touches liquid crystal, wash your hand cleanly by water and soap as soon as possible.



TD141THCA1

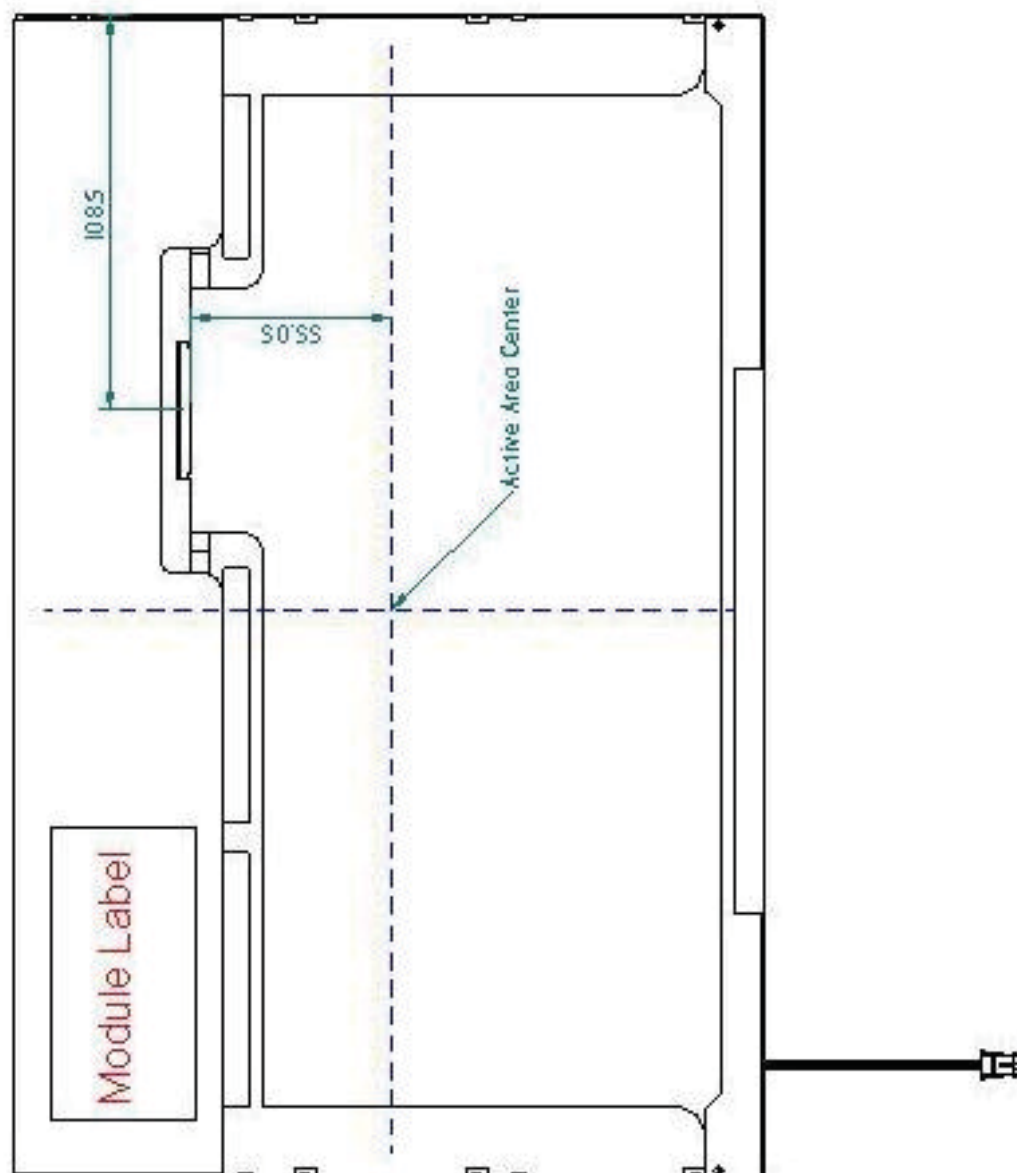
10. MECHANICAL DRAWING



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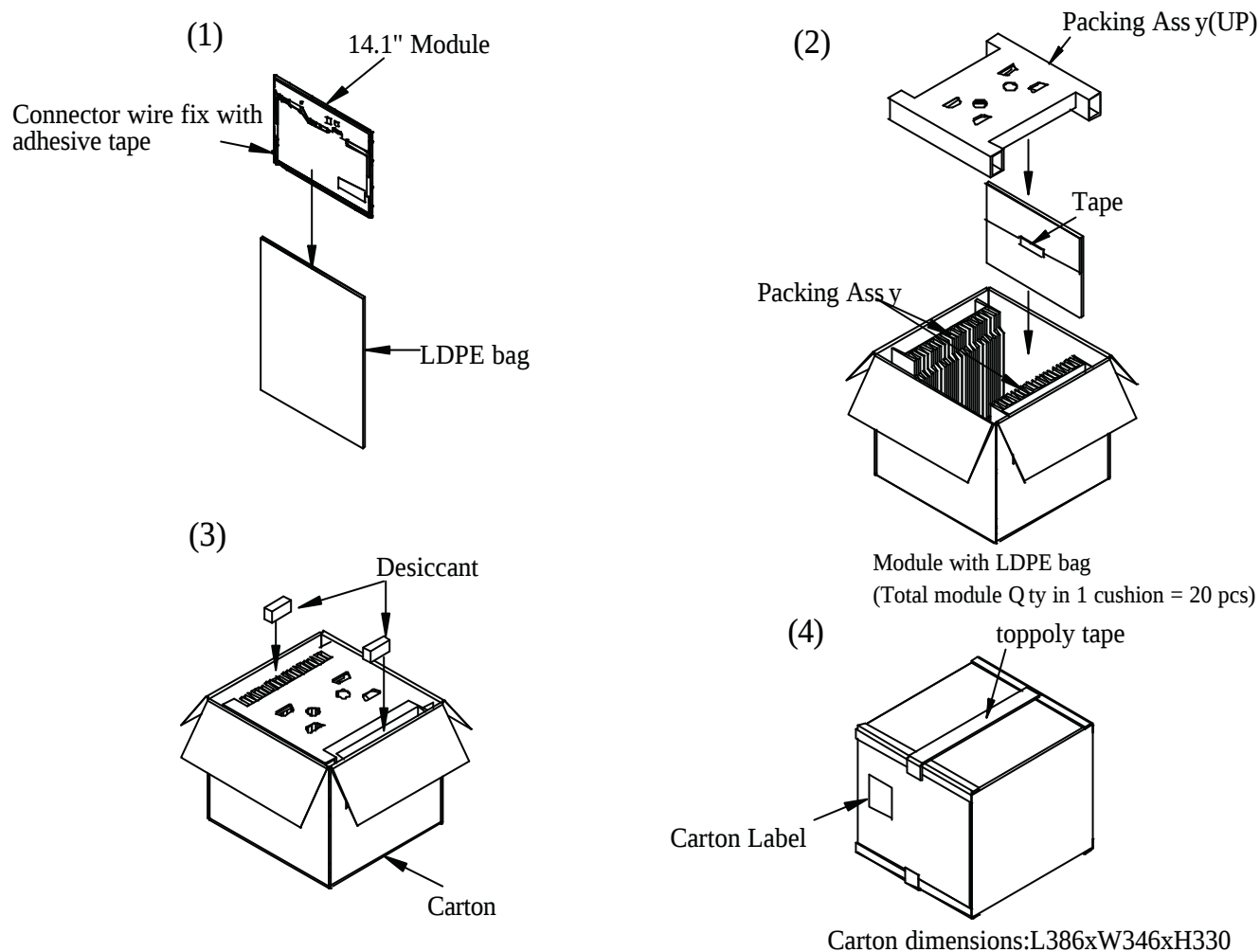
TD141THCA1





TD141THCA1

11. PACKING DRAWING

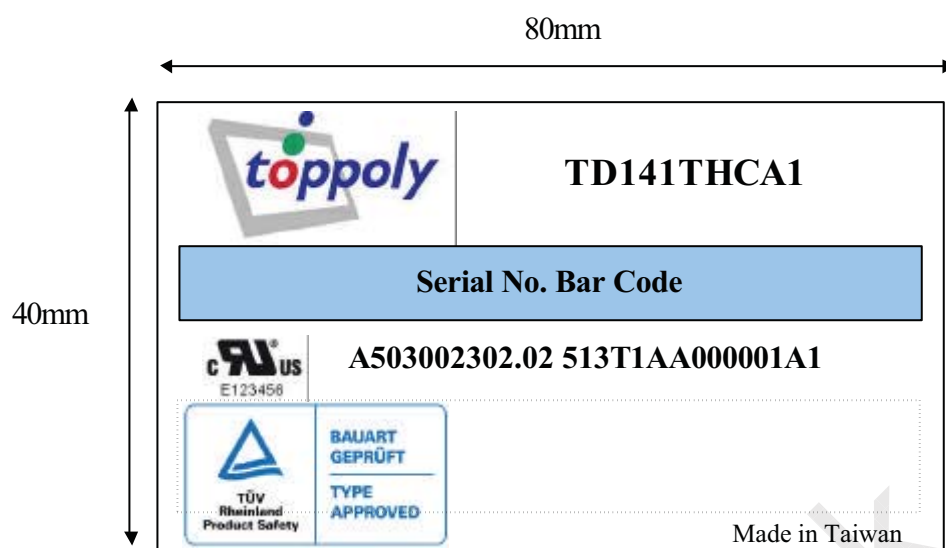




TD141THCA1

12. Module & Carton Label Drawing & Definition

12.1 The module Label Drawing & Definition illustration as below:



a. Product Name: TD141THCA1

b. Lot ID: A503002302.02

c. Serial No.: There are 16 symbols as below,

5 13 T 1A A 0 000001 A1

Year + Week + Factory + Version + Grade + Customer + Sequential Number + RR code

(1) Year is the last number of A.D

(2) The expression of Week is 01 ~ 53 in order.

(3) The expression of Factory is one English letter, T for TP01 and N for NJ.

(4) The expression of Version is two English letters: Version of BOM

(5) The expression of Grade is one English letter: Product grade level

(6) The expression of Customer is one English letter: Customer service beforehand byte

(7) The order of sequential number is 000001~999999→A00001~A99999→B00001~B99999→ and so on.

(8) The expression of code is two English letters: RR code

d. Made in Taiwan or Made in China (Module only).



TD141THCA1

12.2 The Packing Carton Label Drawing & Definition illustration as below:

100mm

80mm

Product ID	TD141THCA1		QA Check
Carton ID	TM51500001 Bar Code		Green Product
Serial No.	From	TD141THCA1 513T1AA000001A1	
	To	TD141THCA1 513T1AA000020A1	
Quantity	20 Pcs		
Lot ID	A503002302.02 20 Pcs		
Made in Taiwan			



TD141THCA1

Appendix1 EDID

Header

Byte(dec)	Byte(hex)	Field Name and Comments	Value(hex)	Value(binary)
0	00	Header	00	0000 0000
1	01	Header	FF	1111 1111
2	02	Header	FF	1111 1111
3	03	Header	FF	1111 1111
4	04	Header	FF	1111 1111
5	05	Header	FF	1111 1111
6	06	Header	FF	1111 1111
7	07	Header	00	0000 0000

Byte(dec)	Byte(hex)	Field Name and Comments	Value(hex)	Value(binary)
8	08	ID Manufacturer Name	51	0101 0001
9	09		CA	1100 1010
10	0A	ID Product Code	60	1100 0000
11	0B		02	0000 0010
12	0C	32-bit serial no.	00	0000 0000
13	0D		00	0000 0000
14	0E		00	0000 0000
15	0F		00	0000 0000
16	10	Week of manufacture	00	0000 0000
17	11	Year of manufacture	0F	0000 1111
18	12	EDID Structure Ver.	01	0000 0001
19	13	EDID revision #	03	0000 0011

Byte(dec)	Byte(hex)	Field Name and Comments	Value(hex)	Value(binary)
20	14	Video input definition	80	1000 0000
21	15	Max H image size	1E	0001 1110
22	16	Max V image size	13	0001 0011
23	17	Display Gamma	78	0111 1000
24	18	Feature support	0A	0000 1010

Byte(dec)	Byte(hex)	Field Name and Comments	Value(hex)	Value(binary)
25	19	Red / green low bits	93	1001 0011
26	1A	Blue / white low bits	E5	1110 0101
27	1B	Red x / high bits	92	1001 0010

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TD141THCA1

28	1C	Red y	57	0101 0111
29	1D	Green x	50	0101 0000
30	1E	Green y	8D	1000 1101
31	1F	Blue x	25	0010 0101
32	20	Blue y	1E	0001 1110
33	21	White x	4F	0100 1111
34	22	White y	54	0101 0100
35	23	Established timing 1	00	0000 0000
36	24	Established timing 2	00	0000 0000
37	25	Established timing 3	00	0000 0000

Byte(dec)	Byte(hex)	Field Name and Comments	Value(hex)	Value(binary)
38	26	Standard timing #1	01	0000 0001
39	27		01	0000 0001
40	28	Standard timing #2	01	0000 0001
41	29		01	0000 0001
42	2A	Standard timing #3	01	0000 0001
43	2B		01	0000 0001
44	2C	Standard timing #4	01	0000 0001
45	2D		01	0000 0001
46	2E	Standard timing #5	01	0000 0001
47	2F		01	0000 0001
48	30	Standard timing #6	01	0000 0001
49	31		01	0000 0001
50	32	Standard timing #7	01	0000 0001
51	33		01	0000 0001
52	34	Standard timing #8	01	0000 0001
53	35		01	0000 0001

Byte(dec)	Byte(hex)	Field Name and Comments	Value(hex)	Value(binary)
54	36	Pixel Clock/10,000 (LSB)	BC	1011 1100
55	37	Pixel Clock/10,000 (MSB)	1B	0001 1011
56	38	Horizontal Active=xxxx pixels (lower 8 bits)	00	0000 0000
57	39	Horizontal Blanking=xxxx pixels (lower 8 bits)	A0	1010 0000
58	3A	Horizontal Active/Horizontal Blanking(Thbp)	50	0101 0000
59	3B	Vertical Active =xxxx lines	20	0010 0000
60	3C	Vertical Blanking(Tvbp)=xxxx lines(DE Blanking min for	17	0001 0111

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TD141THCA1

		DE only panels)		
61	3D	Vertical Active : Vertical Blanking(Tvbp) (upper4:4bits)	30	0011 0000
62	3E	Horizontal Sync, Offset (Thfp)=xxxx pixels	30	0011 0000
63	3F	Horizontal Sync, Pulse Width=xxxx pixels	20	0010 0000
64	40	Vertical Sync,Offset (Tvfp)=xx lines Sync Width=xx lines	36	0011 0110
65	41	Horizontal Vertical Sync Offset / Width upper 2 bits	00	0000 0000
66	42	Horizontal Image Size=xxx mm	2F	0010 1111
67	43	Vertical image Size=xxx mm	BE	1011 1110
68	44	Horizontal Image Size / Vertical image size	10	0001 0000
69	45	Horizontal Border = 0 (Zero for Notebook LCD)	00	0000 0000
70	46	Vertical Border = 0 (Zero for Notebook LCD)	00	0000 0000
71	47	EDID Standard	18	0001 1000
72	48	Flag	00	0000 0000
73	49	Flag	00	0000 0000
74	4A	Flag	00	0000 0000
75	4B	Data Type Tag: Descriptor Defined by Manufacturer	FE	1111 1110
76	4C	Flag	00	0000 0000
77	4D	ASCII(T)	54	0101 0100
78	4E	ASCII(D)	44	0100 0100
79	4F	ASCII(1)	31	0011 0001
80	50	ASCII(4)	34	0011 0100
81	51	ASCII(1)	31	0011 0001
82	52	ASCII(T)	54	0101 0100
83	53	ASCII(H)	48	0100 1000
84	54	ASCII(C)	43	0100 0011
85	55	ASCII(A)	41	0100 0001
86	56	ASCII(1)	31	0011 0001
87	57	End of ASCII string	0A	0000 1010
88	58	Padding with "Blank" character	20	0010 0000
89	59	Padding with "Blank" character	20	0010 0000

Byte(dec)	Byte(hex)	Field Name and Comments	Value(hex)	Value(binary)
90	5A	Flag	00	0000 0000
91	5B	Flag	00	0000 0000
92	5C	Flag	00	0000 0000
93	5D	Dummy Descriptor	FE	1111 1110

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TD141THCA1

94	5E	Flag	00	0000 0000
95	5F	ASCII (T)	54	0101 0100
96	60	ASCII (O)	4F	0100 1111
97	61	ASCII (P)	50	0101 0000
98	62	ASCII (P)	50	0101 0000
99	63	ASCII (O)	4F	0100 1111
100	64	ASCII (L)	4C	0100 1100
101	65	ASCII (Y)	59	0101 1001
102	66	End of ASCII string	0A	0000 1010
103	67	Padding with "Blank" character	20	0010 0000
104	68	Padding with "Blank" character	20	0010 0000
105	69	Padding with "Blank" character	20	0010 0000
106	6A	Padding with "Blank" character	20	0010 0000
107	6B	Padding with "Blank" character	20	0010 0000
108	6C	Flag	00	0000 0000
109	6D	Flag	00	0000 0000
110	6E	Flag	00	0000 0000
111	6F		FE	1111 1110
112	70	Flag	00	0000 0000
113	71	ASCII (T)	54	0101 0100
114	72	ASCII (D)	44	0001 0001
115	73	ASCII (1)	31	0011 0001
116	74	ASCII (4)	34	0011 0100
117	75	ASCII (1)	31	0011 0001
118	76	ASCII (T)	54	0101 0100
119	77	ASCII (H)	48	0100 1000
120	78	ASCII (C)	43	0100 0011
121	79	ASCII (A)	41	0100 0001
122	7A	ASCII (1)	31	0011 0001
123	7B	End of ASCII string	0A	0000 1010
124	7C	Padding with "Blank" character	20	0010 0000
125	7D	Padding with "Blank" character	20	0010 0000
126	7E	Extension flag	00	0000 0000
127	7F	Checksum	D3	1101 0011

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